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Probing violations of slow-roll inflation at the largest observable scales with future galaxy surveys

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The predictions of the simplest inflationary models, such as a flat Universe and Gaussian adiabatic perturbations with a red tilt, provide a remarkable good fit to the most recent measurements of CMB temperature and polarization anisotropies. Nevertheless, deviations from a simple power-law spectrum provide a better fit to Planck temperature anisotropies data, in particular on the largest scales, i.e. at $k < 0.008 \ Mpc^{-1}$, although at a non-statistical significant level because of cosmic variance. We study the capability of future galaxy surveys as EUCLID and other experiments to distinguish possible deviations from a simple power-law for primordial perturbation on these large scales.

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